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Complete Specification  
entitled (54) **FASTENER-DRIVING TOOL ARRANGEMENT  
FOR FASTENING HOT TOP TILES TO CHILL MOULDS**

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The following statement is a full description of this invention, including the best method of performing it known to us :

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X649-77-1D-21P.C.

F. D. Atkinson, Government Printer, Canberra

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This invention concerns a fastener-driving tool arrangement for use in fastening hot top tiles to chill moulds, of the type (hereinafter referred to as "of the type described") comprising an explosive-actuated fastener-driving tool mounted on an elongate rod-like support whereon is a lateral rest for engagement with the top face of the chill mould.

As is well known, the wall thicknesses of chill moulds vary considerably, not only from mould to mould, but in any individual mould there may be very great differences in the thickness of the walls thereof at various positions therealong. Fastener-driving tool arrangements of the type described, as hitherto proposed, have been provided with a stop, which is adjustable along the lateral rest, for engagement with the outer surface of the chill mould. This stop, by its engagement with the outer surface of the mould, enables the rod-like support to be manipulated in such a way as to ensure that the fastener-driving tool is pressed firmly against the hot-top tile to be fastened. Most fastener-driving tools require the usual barrel thereof to be pressed in against resilient loading before the tool can actually be actuated for detonating the explosive for effecting a fastener-driving operation. The stop provided on the known arrangements enables appropriate pressing-in force to be applied to the tool by way of the support, by ensuring that the arm provides an effective fulcrum for the support.

When such a known arrangement is employed on a chill mould having substantial wall thickness variations, the stop may have to be adjusted along the rest several times during the fastening the requisite number of tiles to the mould, and this is time-consuming and tedious.

An object of this invention is to provide a construction which can be used on moulds of different or varying wall thicknesses without the need for adjusting a stop along the rest.

With this object in view, the present invention provides a fastener-driving tool arrangement for use in fastening hot top tiles to chill moulds, comprising an explosive-actuated fastener-driving tool mounted on an elongate rod-like support whereon is a lateral rest for engagement with the top face of the chill mould, characterised in that the said rest is in the form of an arm having a plurality of teeth engageable with the outer surface of the chill mould according to the wall thickness thereof.

With such an arrangement, one has the advantage that the tool can be used on chill moulds of various wall thicknesses and of varying wall thickness without the need for adjusting a stop each time a difference of wall thickness is encountered; it is only necessary to locate the appropriate one of the teeth of the rest over the outer edge of the top face of the mould, to engage the outer surface there-

adjacent to ensure that the rest provides the necessary fulcrum for the support to enable the tool to be pressed against the tile to be fastened.

The teeth are preferably of saw-tooth or ratchet-tooth form, each providing a tooth flank, which extends substantially parallel to the longitudinal direction of the support, for engaging the outer surface of the chill mould.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which :-

Fig. 1 is a diagrammatic part-sectional side elevation illustrating a preferred embodiment of the arrangement of the invention in use in the fastening of a hot top tile to the inner surface of a wall of a chill mould, near to the top thereof; and

Fig. 2 is an enlarged part-sectional elevation illustrating details of the rest of the arrangement of Fig. 1.

As shown in Fig. 1, a fastener-driving tool arrangement for use in fastening hot top tiles to chill moulds, conforming to the invention, comprises an explosive-actuated or explosive-powered fastener-driving tool indicated generally by the reference numeral 1 mounted on the lower end of an elongate rod-like support 2 which may be in the form of a

tube. An operating mechanism (not shown) is provided at the upper end of the support 2 for operating the tool 1 and the latter cannot operate until a protruding barrel thereof has been pressed in against resilient loading.

A lateral rest, in the form of an arm 4, is provided on the support 2. As has been shown in Fig. 2, one end of the arm 4 is pivotally connected to a clamp sleeve 3 through which the support 2 extends, the clamp sleeve 3 being adjustable in position along the support 2. <sup>Adjustment of the support 2</sup> may be achieved, for example, by the pivoted end of the arm 4 having a cam-like end surface which frictionally engages with the confronting surface of the support 2 when the arm 4 is in the disposition shown in Fig. 1, but other clamping arrangements are, of course, possible.

Secured to the end of the arm 4 remote from the support 2 is a plate 7 formed, along its edge which faces towards the tool 1, with a plurality of teeth 6 which, as shown, are preferably of saw-tooth or ratchet tooth form, each providing an inclined tooth flank 6b and a tooth flank 6a extending substantially parallel to the longitudinal direction of the support 2. Instead of the teeth 6 being provided on a separate plate 7 secured to the arm 4, such teeth 6 may, if desired, be provided directly upon the arm itself.

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When the arrangement is employed for securing a hot top tile to a wall of a chill mould, as shown in Fig. 1 the arrangement is positioned with the arm 4 engaging with or resting on top face 5<sub>b</sub> of the wall of the chill mould, the support, held by its upper end, extending down into the mould so that the tool 1 engages by the muzzle end of its barrel against inner face 5<sub>a</sub> of the chill mould's wall. In order to locate the arm 4 firmly on the top face 5<sub>b</sub> of the chill mould's wall so that its pivotal connection to the support 2 provides a firm stationary fulcrum for the support 2 to be manipulated to press the tool 1 sufficiently against the tile for its barrel to be pressed in, the operator weights the arm 4 by one foot so that an appropriate one of the teeth 6 engages by its flank 6<sub>a</sub> against the outer face 5<sub>c</sub> of the mould's wall, according to the thickness of such wall. It will be evident that it is a simple matter to slide the arm 4 over the top face 5<sub>b</sub> of the <sup>mould</sup>~~mould's~~ wall to ensure that the appropriate tooth 6 is engaged, and that the toothed engagement of the arm 4 can be released simply by the operator removing his foot from the arm 4 and lifting the entire arrangement by means of the support 2.

Although the accompanying drawings illustrate a preferred embodiment of the construction of the invention, it will be understood that variations may be made thereto within the scope of the following claims.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A fastener-driving tool arrangement for use in fastening hot top tiles to chill moulds, comprising an explosive-actuated fastener-driving tool mounted on an elongate rod-like support whereon is a lateral rest for engagement with the top face of the chill mould, characterised in that the said rest is in the form of an arm having a plurality of teeth selectively engageable with the outer surface of the chill mould according to the wall thickness thereof.
2. A fastener-driving tool arrangement as claimed in Claim 1 wherein the teeth are of saw-tooth or ratchet-tooth form.
3. A fastener-driving tool arrangement as claimed in Claim 1 or 2 wherein the rest is adjustable along the support.
4. A fastener-driving tool arrangement as claimed in Claim 3 wherein the rest is connected to the support by a clamp.
5. A fastener-driving tool arrangement as claimed in any preceding claim wherein the rest is connected to the support so as to be capable of limited pivotal movement relative thereto.
6. A fastener-driving tool arrangement substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

DATED this 17th. day of February, 1971.

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Fig. 1

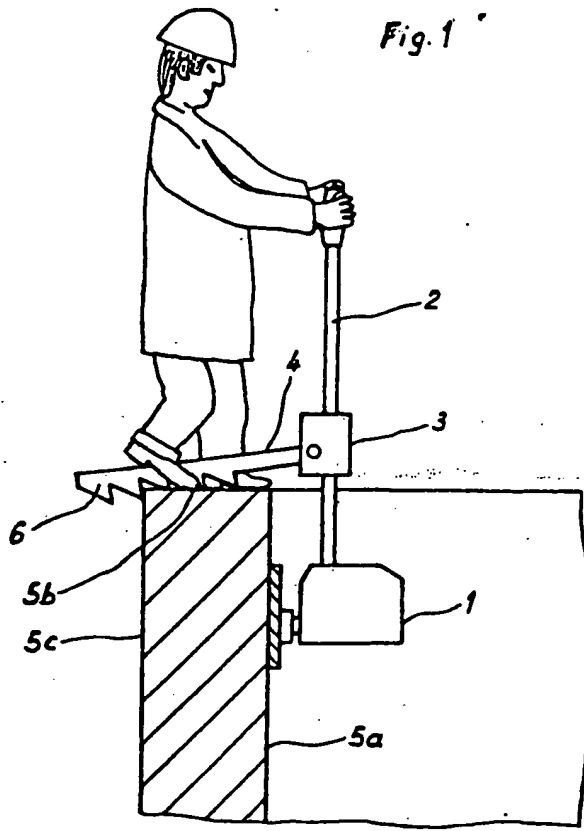
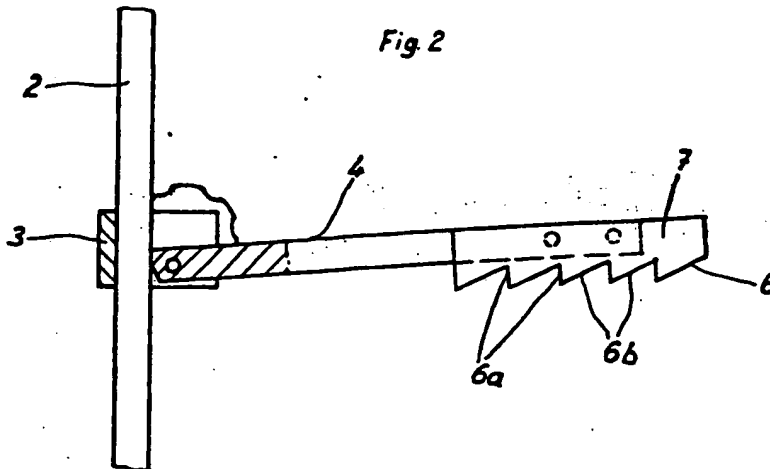


Fig. 2



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